INSTRUCTIONS WITH PARTS LIST

FOR

WESTON®
MODEL 1270

DIGITAL PANEL METER

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WESTON INSTRUMENTS, INC.
WESTON — NEWARK
614 FRELINGHUYSEN AVENUE, NEWARK, NEW JERSEY 07114

F-3532 R1 1/68 Printed in U. S. A.

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Covered by U. S. Patent 3,051,9[illegible]
and other patent applications pending

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GENERAL SPECIFICATIONS*

Accuracy	±0.1% of full scale ± 1 ±1 digit.
Conversion Rate (Readings/Second)	2 (Standard) - Can be supplied for 10 to 1/10.
Power Requirements ...	117 Volts ±10%, 58 to 62 Hz, 12 watts. (Also operates on 400 Hz) (See following note).
Effective Series Mode Rejection	35 dB at 60 Hz for one digit error.
Weight	3 lbs approximately.

Refer to Table I for a tabulation of specifications pertaining to specific instruments.

NOTE

The Model 1270 is available as a 50 Hz unit, under a different type number. The 50 Hz unit also operates on 400 Hz.

* Specifications subject to change without notice.

WESTON ® CATALOG NUMBER	WESTON ® PART NUMBER		MAXIMUM VOLTAGE OVERLOAD ⁄	EFFECTIVE COMMON MODE REJECTION at 60 Hz
1270-1901004	260720	10	1100	Minus Terminal on GND
1270-1901003	260719	1	1000	74 dB #
1270-1901002	260718		1000	80 dB #
1270-1901001	260717		200	80 dB #
1270-9901001	260716	1	100	80 dB #
1270-4901003	260715	1	-	-
1270-4901002	260714		-	-
1270-4901001	260713		-	-
1270-5901002	260712	1	-	-
1270-5901001	260711		-	-

* Specifications subject to change
⁄ Maximum continuous voltage th
One digit error with unbalance
x See operation section, paragra

GENERAL SPECIFICATIONS*

Accuracy	±0.1% of full scale ± 1 ±1 digit.
Conversion Rate (Readings/Second)	2 (Standard) - Can be supplied for 10 to 1/10.
Power Requirements ...	117 Volts ±10%, 58 to 62 Hz, 12 watts. (Also operates on 400 Hz) (See following note).
Effective Series Mode Rejection	35 dB at 60 Hz for one digit error.
Weight	3 lbs approximately.

Refer to Table I for a tabulation of specifications pertaining to specific instruments.

NOTE

The Model 1270 is available as a 50 Hz unit, under a different type number. The 50 Hz unit also operates on 400 Hz.

* Specifications subject to change without notice.

TABLE 1.
TABLE OF SPECIFICATIONS*

WESTON ® CATALOG NUMBER	WESTON ® PART NUMBER	RANGE (DC)	SENSITIVITY	INPUT IMPEDANCE	FULL SCALE PRESENTATION [x]	NAME PLATE DATA	MAXIMUM VOLTAGE OVERLOAD [/]	EFFECTIVE COMMON MODE REJECTION at 60 Hz
1270-1901004	260720	1000 Volts	1.0 V	1 Meg	999.	Volts DC	1100	Minus Terminal on GND
1270-1901003	260719	100 Volts	0.1 V	1 Meg	99.9	Volts DC	1000	74 dB #
1270-1901002	260718	10 Volts	0.01 V	1 Meg	9.99	Volts DC	1000	80 dB #
1270-1901001	260717	1 Volts	0.001 V	100 K	.999	Volts DC	200	80 dB #
1270-9901001	260716	100 Millivolts	0.1 MV	10 K	99.9	Millivolts DC	100	80 dB #
1270-4901003	260715	100 Milliamperes	0.1 Ma	1 Ω	99.9	Milliamperes DC	-	-
1270-4901002	260714	10 Milliamperes	0.01 Ma	10 Ω	9.99	Milliamperes DC	-	-
1270-4901001	260713	1 Milliampere	0.001 Ma	100 Ω	.999	Milliamperes DC	-	-
1270-5901002	260712	100 Microamperes	0.1 μa	1 K	99.9	Microamperes DC	-	-
1270-5901001	260711	10 Microamperes	0.01 μa	10 K	9.99	Microamperes DC	-	-

* Specifications subject to change without notice
/ Maximum continuous voltage than can be applied to the meter without damage.
One digit error with unbalance of 100 ohms.
x See operation section, paragraph 3.

GENERAL

The Weston Model 1270 Digital Panel Meter is a single range meter designed to indicate input DC voltage or current by means of numerical digits rather than the previously standard analog moving pointer method. It is provided with 3 digital display tubes for readout to three places. All design features are in keeping with panel meter usage but the digital concept provides linearity, high accuracy, stability and speed of reading without consideration of such factors as parallax, reader interpretation or tracking inherent in analog devices.

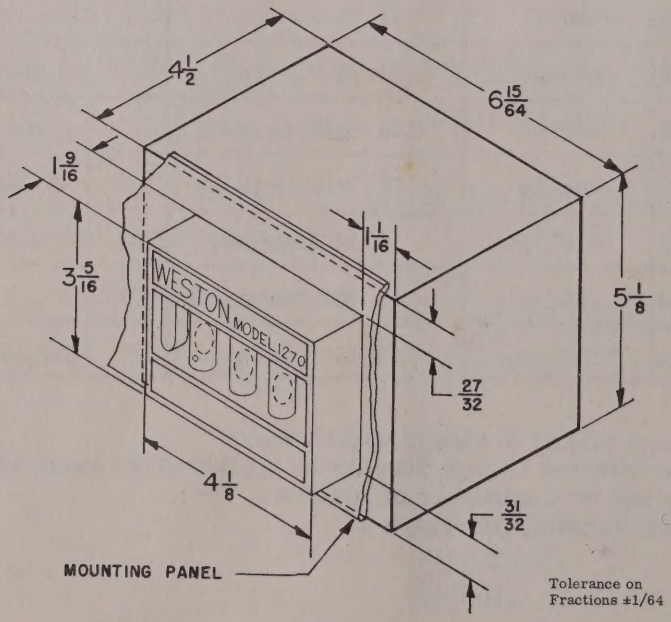


Figure 1. Outline Dimensional Drawing

An automatic Out Range light is provided to indicate that the meter is operating at its full scale point or beyond its normal range of operation.

A Remote control and three decades of 1-2-4-8 BCD (Binary Coded Decimal) are provided as additional special features. The Remote terminal is used to stop conversion and maintain the last reading displayed on the readout tubes and at the BCD output terminals. The BCD decades are used to provide outputs to drive external devices, such as printers.

The case front has a circularly polarized filter window to eliminate glare. Zero adjustment facilities are also provided. Through the use of the adjustment studs, which are accessible through the case front holes, adjustment may be made over a range of ±8 counts.

The meter is manufactured by Weston Instruments, Inc., Newark, New Jersey. All inquiries pertaining to operation or repair of this instrument should be directed to Weston-Newark. Refer to Figure 1, Outline Dimensional Drawing, for a pictorial view of the meter and overall dimensions.

INSTALLATION AND OPERATING INSTRUCTIONS

PANEL MOUNTING

1. Unpack the meter and perform a visual inspection to assure that no damage has occurred during shipment or handling. Remove all packaging material.

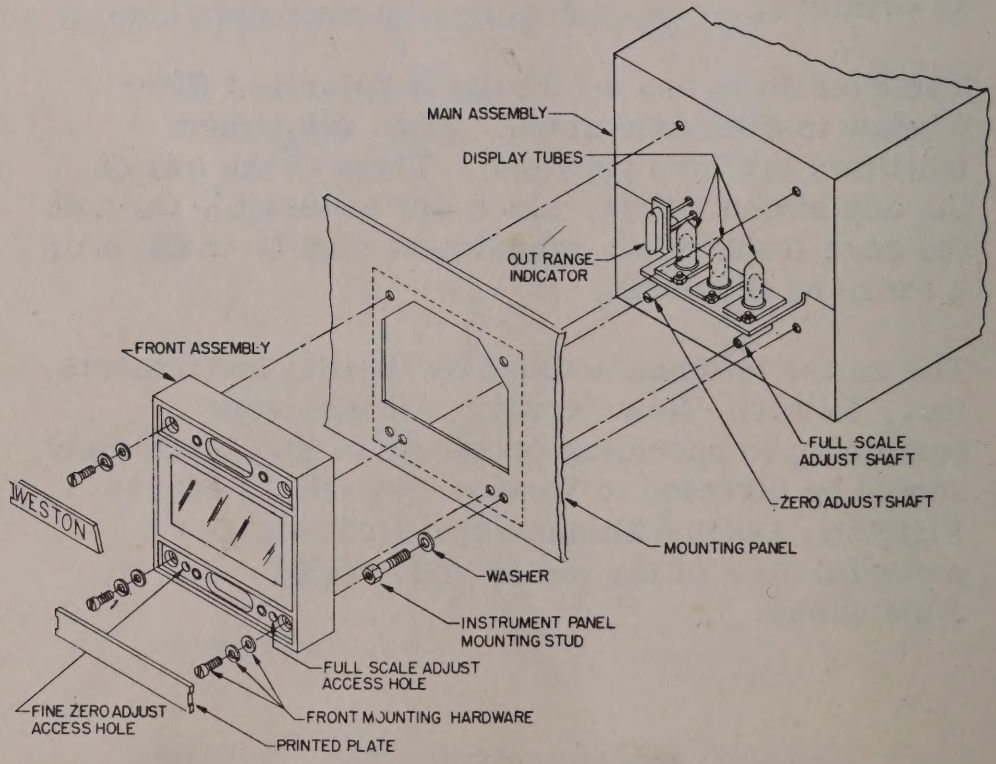


Figure 2. Meter Mounting Drawing

2. Mount the main assembly (See Figure 2) with the four studs and washers on a panel 1/16 to 1/8 inch thick prepared in accordance with the panel cut-out dimensions. (See Figure 3.)

3. Check display tubes to assure that they are securely mounted in their sockets. Press loose tubes down gently to obtain secure mounting.

4. The cover assembly may be mounted at this time, using mounting hardware as shown, or after electrical adjustments. The magnetic printed access plates are positioned in place after adjustments are made.

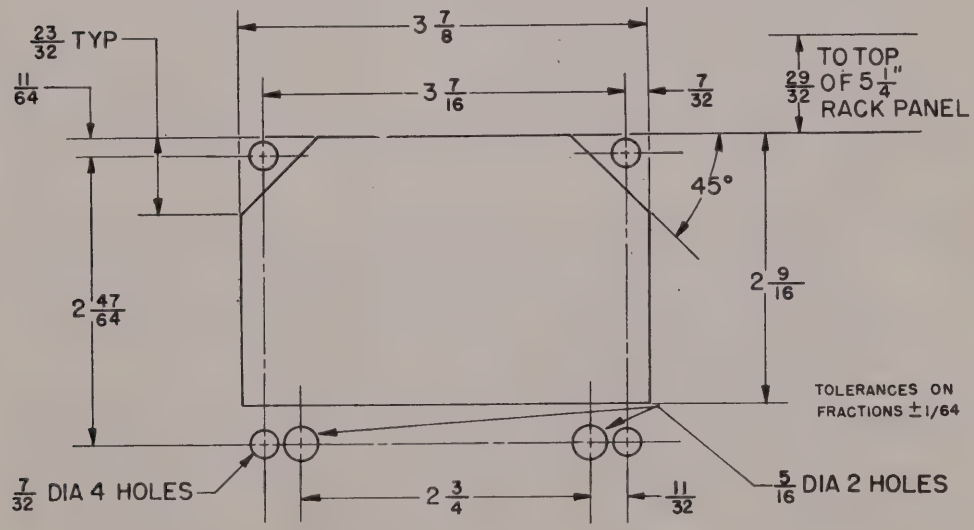


Figure 3. Panel Cut-Out Dimensions.

ELECTRICAL ADJUSTMENT

NOTE

Only steps 1 thru 4 are to be performed upon initial installation. Perform complete adjustment procedure, steps 1 thru 6 at periodic calibration.

1. Connect the line voltage to terminals L, L, and GRD located at rear of meter. Refer to Table of Specifications for proper input.
2. Connect a non-electrolytic 1 mfd capacitor between Input Terminals (-) and GRD.

NOTE

This connection is preferred for quieter operation. However, the meter may be operated "floating".

3. Allow meter to warm up for a period of 30 minutes.
4. Connect a jumper wire between Input Terminals (+) and (-). Rotate the left FINE ADJUST shaft with a screwdriver until the meter indicates 000, occasionally going to 001.
5. Remove the jumper wire between the (+) and (-) Input Terminals and connect a standard source to the (+) and (-) Input Terminals. With full scale voltage or current applied, rotate right FULL SCALE ADJUST shaft with a screwdriver until the meter indicates 000 and the OUT RANGE light is ON.

6. Repeat steps 4 and 5 as necessary until proper adjustment is achieved.

OPERATION

1. After the meter has been panel mounted and electrically adjusted it is ready for operation.

2. Connect a 117V single phase power line with ground to terminals L, L, and GRD. Connect voltage or current to be measured to Input (+) and (-) terminals, observing proper polarity. See step 2 of Electrical Adjustment for input ground connection.

3. Full scale digital presentation of the meter is as given in Table I. However, the meter is capable of being operated beyond this range by 20%. For example, the operational range of the 1 volt meter is +1.200 volts to -0.200 volt. Overrange (indications beyond full scale limits) is indicated by the OUT RANGE light.

4. When an overrange situation exists, 1.100 volts applied to a one volt range for example, the OUT RANGE light goes on and the quantity displayed on the tubes is .100. When the wrong polarity is applied to the meter it reads the complement (1.000 minus input) down to a count .800. The display then appears blurred.

5. The following table depicts basic conditions which may exist during the course of meter operation. The example given in the Table is for the one volt range meter.

APPLIED SIGNAL VOLTAGE	SIGNAL INPUT POLARITY	OUT RANGE LIGHT	INDICATION ON DISPLAY TUBES
1.000	CORRECT	ON	.000
.000 to .999	CORRECT	OFF	.000 to .999
.001 to .199	REVERSED	ON	.999 to .801

6. To stop the conversion and maintain the last reading on the display tubes and the BCD output terminals, the Model 1270 is equipped with a REMOTE terminal. By closing a switch between REMOTE and (-) input terminals the last conversion may be held for as long as desired. Connection of the REMOTE terminal to a short duration (+) 5 volt pulse, from the shorted condition, forces a conversion. Synchronization of a number of Model 1270 units can also be obtained by triggering the external Remote circuitry.

7. Three decades of 1-2-4-8 BCD (Binary Coded Decimal) are provided at the rear of the instrument to drive external devices. The rise and fall time of the output is compatible with Industrial RTL (Resistor-Transistor-Logic) micrologic or its equal. Logic levels are; logical 0, equal to or greater than 1.1 volt, and logical 1, equal to or

less than 0.4 volt. For applications where other logic levels must be met interface criteria should be coordinated with the factory.

8. The print command (P.C.) terminal is used to provide a 1.5 volt output signal when conversion from analog to digital is complete. The purpose of P.C. is to key the external devices (see step 7) for information acceptance.

REPAIR INSTRUCTIONS

Due to the intricate design of this meter and the complexity of calibration and testing, internal repair is to be performed only by authorized Weston repair centers. Customer repair of the meter is limited to replacement of display tubes. Refer to Installation Instructions for method of front assembly removal to make display tubes accessible.

Display tubes should be replaced when a disturbing loss of a portion of any numeral or significant loss of original intensity has occurred.

THEORY OF OPERATION

The Model 1270 utilizes a dual slope integration technique designed with sensing intervals related to power frequency for converting analog signals to digital form. This method provides true average output readings while avoiding series mode interference problems. The meter actually uses four signal sampling intervals to balance the effect of the unknown input signal against the effect of its known reference signal, measure their ratio and translate it to the display tubes.

The sampling intervals are 8000 cycle pulse-trains which are received from a 480 kc oscillator through a dividing counter (÷ 8 counter). See Figure 4. At the start of each 8000 cycle interval a control flip-flop keys an analog gate which permits the -6.2 volt reference to start discharging a capacitor. As soon as the charge reaches zero the negative reference voltage is removed and the capacitor charges at a rate determined by the input voltage. This charge continues until the end of the 8000 cycle interval. Since the initial charge on the capacitor and the input signal level are unknown, four cycles are used to stabilize the "charge and discharge time-ratio". Actually the first three cycles are discarded and the fourth cycle is measured and displayed.

Although the measuring interval is 8000 cycles long, it does not matter what the exact frequency is, providing it remains stable for 32,000 cycles (67 MS). The first decision point occurs at the start of this interval, and initiates a capacitor discharge at a high rate, controlled primarily by the reference source.

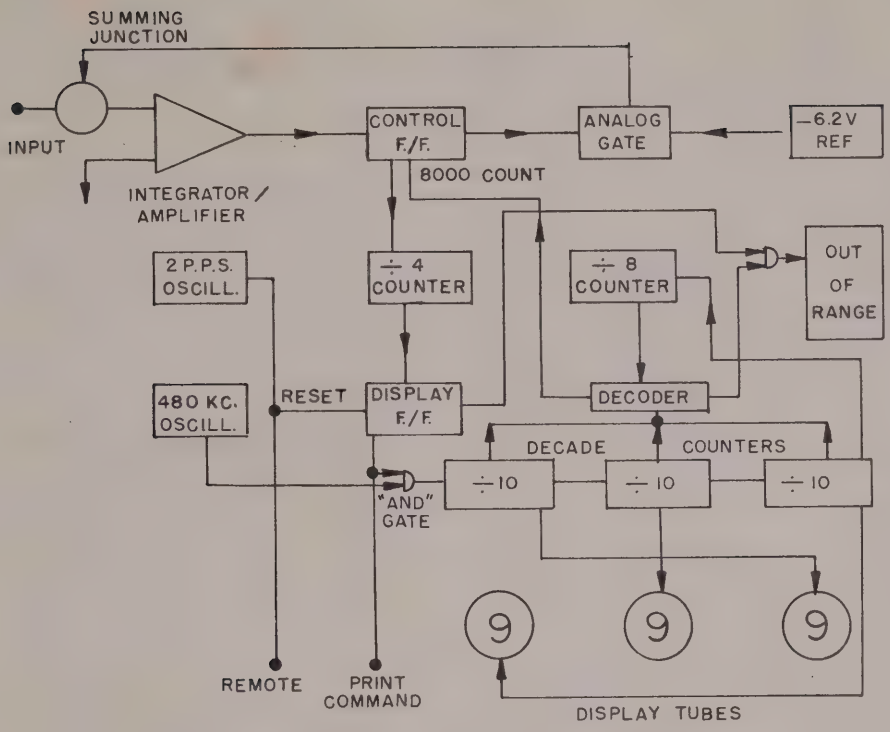


Figure 4. Operational Block Diagram

The second decision point, whenever it may occur in each 8000 cycle time interval, is to disconnect the reference when the capacitor charge reaches zero. The objective of the measurement is to determine the ratio of these 8000 cycles devoted to charging and discharging the capacitor. The value that is finally measured and displayed is the number of cycles counted during the last discharge to zero.

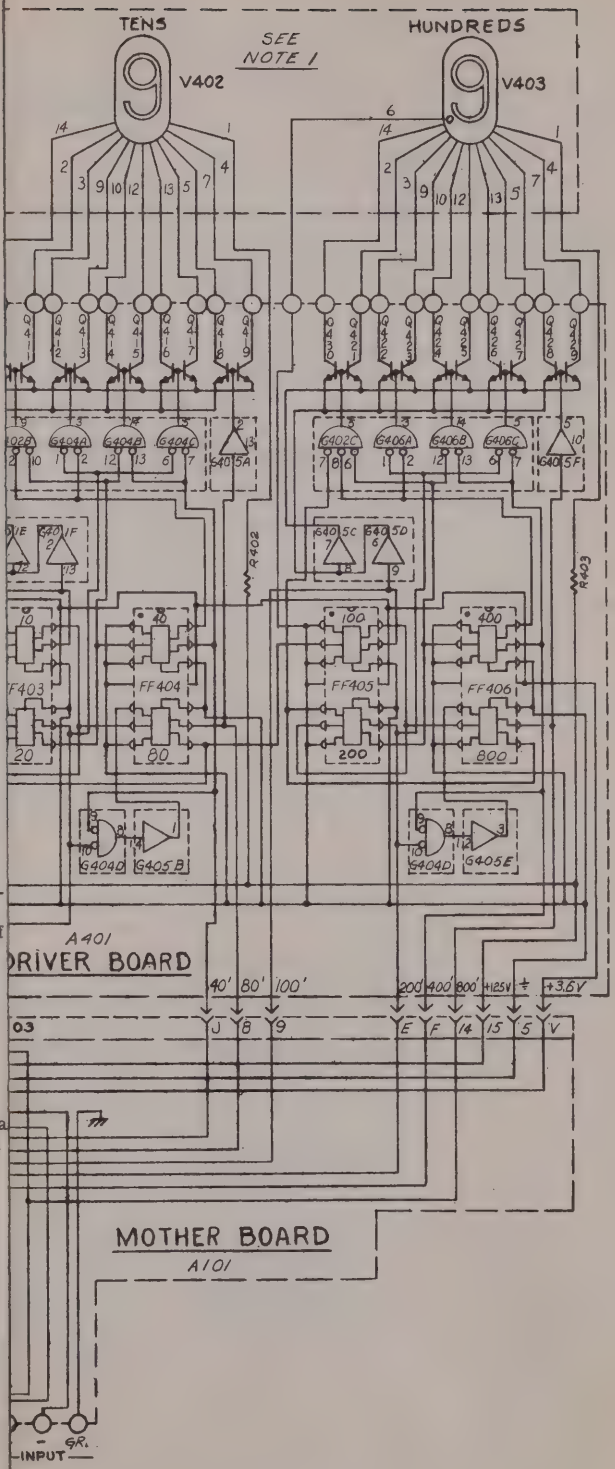
A pulse generator, that runs at two pulses per second, is used to initiate this sequence. Every time this generator initiates action the entire sequence of events starts. The two per second

timing rate is only to give the observer time to comprehend the visual display.

At the end of each sequence it is necessary to remove the displayed signal from the tubes. This is accomplished when the two pulse per second (pulse generator) opens the AND GATE which permits the 480 kilocycle oscillations to pour into the counter until the count has reached 000. This point is used as our 8000 cycle measurement pulse train. This start measuring pulse starts the capacitor discharging to zero. When the charge on this capacitor reaches zero and the reference voltage is removed for the balance of the 8000 cycle interval, the fact that the capacitor charge has tried to cross zero is noted as an event and actuates a four count counter ($\div$ 4 counter) once. The next 8000 cycle train from the high frequency oscillator makes this process occur again, and the fact that the capacitor again tries to cross the zero level is again recorded as a count of 2. This goes on until the fourth such event occurs, but instead of being counted, this fourth count shuts off the gate between the oscillator and the counter. Therefore, what has been accumulated in the digital counter in this discharge interval is displayed. This count is proportional to the input signal.

When the input signal is less than 000 (a negative signal) or is above full scale, the decade counters trigger a decoder which, along with the display flip-flop output, feeds a gate signal to actuate the Out Range Indicator.

Figure 5 is the schematic wiring diagram for the Model 1270.



NOTES:

1. The location and wiring of decimal readout tube V403 is dependent upon the range of the instrument. The range shown is 100 (decimal tube on the right wired with decimal readout on left of digit). The 1000 range is wired with decimal on right side of digit. Refer to Table I for location of decimal tube for all other ranges.

2. Figure 5 is the basic diagram applicable to all meters listed in the Table of Specifications. In order to obtain the complete wiring for a specific range and function, refer to the table on back of this page for identification and location of additional components and connections required between terminals identified BA-A, B-B, C-C, D-D, A-E, E-D, BA-E & E-E. See views A and B on back of diagram for actual physical location of components on Mother board A1-1.

matic Wiring Diagram

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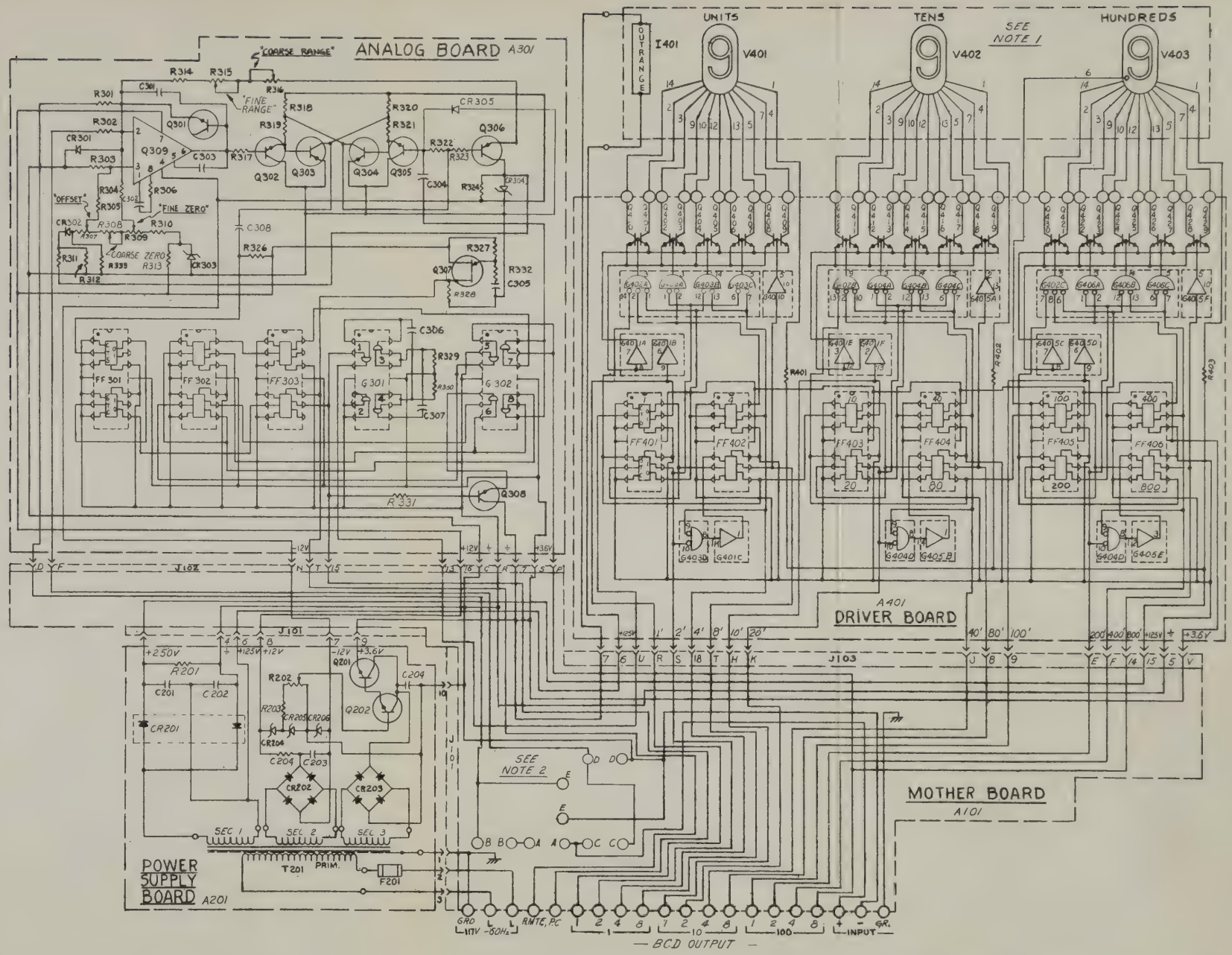


Figure 5. Schematic Wiring Diagram

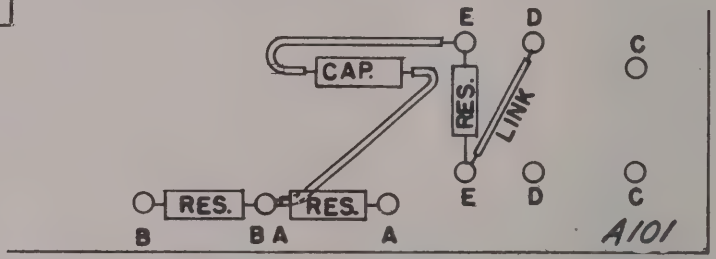
Views A & B)	
BA-E	E-E
264769-001	265803-001
264769-001	265804-001
264769-001	-
264752-001	-
-	-
-	-
-	-
-	-
-	-
-	-

rmine the part number of

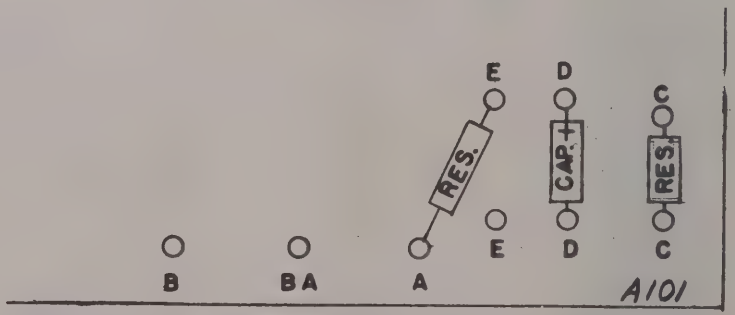
9890-001) also cut

WVDC	
WVDC	
20%, 20 WVDC	

TABLE II. A101 PART NUMBER	
FUNCTION & RANGE	A101-MOTHER BOARD ASSY PART NUMBER
1000 Volts	261415-906
100 Volts	261415-905
10 Volts	261415-904
1.0 Volts	261415-903
100 Millivolts	261415-902
100 Milliamperes	261415-910
10 Milliamperes	261415-909
1.0 Milliamperes	261415-908
100 Microamperes	261415-907
10 Microamperes	261415-902



View A. Voltage Range Component Connection Method. (See table for part numbers of components required for individual ranges.



View B. Millivolt, Milliamp and Microamp Component Connection Method. (See table for part numbers of components required for individual ranges)

REPLACEMENT PARTS LIST
MODEL 1270

REFERENCE SYMBOL	DESCRIPTION	WESTON PART NO.
	ELECTRICAL COMPONENTS	
A101	CIRCUIT BOARD ASSEMBLY: Mother board	See Table II
A201	CIRCUIT BOARD ASSEMBLY: Power board	261432-901
A301	CIRCUIT BOARD ASSEMBLY: Analog board	261412-901
A401	CIRCUIT BOARD ASSEMBLY: Driver board	261408-901
C201, C202	CAPACITOR, ELECTROLYTIC: 20 μf ±20%, 250 WVDC	ND27944-001
C203	CAPACITOR, ELECTROLYTIC: 100 μf -10% +150%, 50 WVDC	264095-001
C204	CAPACITOR, ELECTROLYTIC: 2000 μf -10% +150%, 25 WVDC	264096-001
C301	CAPACITOR, MYLAR FILM: 0.027 μf ±10%, 100 WVDC	264093-001
C302	CAPACITOR, MYLAR FILM: 0.0047 μf ±10%, 100 WVDC	264092-001
C303	CAPACITOR, CERAMIC, DISC: 220 pf ±10%, 1000 WVDC	264091-001
C304	CAPACITOR, CERAMIC, DISC: 100 pf ±10%, 1000 WVDC	264089-001
C305	CAPACITOR, MYLAR FILM: 0.33 μf ±10%, 100 WVDC	264094-001
C306, C307	CAPACITOR: 120 pf ±5%, 500 WVDC	265802-001
C308	CAPACITOR, CERAMIC, DISC: 120 pf ±10%, 1000 WVDC	264090-001
F201	FUSE: 0.25 amp, Type 3AG, 125 volts	264079-001
G301	MICROCIRCUIT: Integrated, medium power, quad 2-input gate	264608-001
G302	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
G401, G405	MICROCIRCUIT: Integrated, medium power, Hex inverter	264612-001
G402	MICROCIRCUIT: Integrated, low power, Triple 3-input gate	264610-001
G403, G404 G406	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
I401	INDICATOR: Out of Range, 125 v	264032-001

FUNCTION & RANGE	COMPONENTS AND LOCATION BETWEEN TERMINALS (See Views A & B)							
	BA-A	B-B	C-C	D-D	A-E	E-D	BA-E	E-E
1000 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	265803-001
100 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	265804-001
10 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	-
1.0 Volt	264753-001	LINK	-	-	-	-	264752-001	-
100 Millivolts	-	-	264799-001	265800-001	-	-	-	-
100 Milliamps	-	-	264799-001	265800-001	264776-001	-	-	-
10 Milliamps	-	-	264799-001	265800-001	264773-001	-	-	-
1.0 Milliamp	-	-	264799-001	265800-001	264775-001	-	-	-
100 Microamps	-	-	264799-001	265800-001	264771-001	-	-	-
10 Microamps	-	-	264799-001	265800-001	-	-	-	-

Components are supplied properly assembled on Mother Board Assembly. Refer to Table II to determine the part number of the Mother Board Assembly (A101) for the various ranges.

The Link consists of #22 Gage Copper Wire (ND12867-000) cut to required length inside tubing (ND29890-001) also cut to length required.

COMPONENT IDENTIFICATION TABLE	
PART NUMBER	DESCRIPTION
264752-001	CAPACITOR, METALLIZED MYLAR: 1.0 mfd ±20%, 100 WVDC
264753-001	RESISTOR, FIXED, METAL FILM: 49.9K ±1%, 1/2 W
264769-001	CAPACITOR, METALLIZED MYLAR: 0.1 mfd ±20%, 600 WVDC
264771-001	RESISTOR, FIXED, METAL FILM: 1150 ohms ±1%, 1/2W
264772-001	RESISTOR, FIXED, WIRE WOUND: 500K ±1%, 1W
264773-001	RESISTOR, FIXED, WIRE WOUND: 10 ohms ±1%, 2W
264775-001	RESISTOR, FIXED, WIRE WOUND: 100 ohms ±1%, 2W
264776-001	RESISTOR, FIXED, WIRE WOUND: 1.0 ohm ±1%, 2W
264799-001	RESISTOR, FIXED, METAL FILM: 4.99K ±1%, 1/2W
265800-001	CAPACITOR, SOLID TANTALUM, POLARIZER: 10 mfd ±20%, 20 WVDC
265803-001	RESISTOR, FIXED, METAL FILM: 499 ohms ±1%, 1/2W
265804-001	RESISTOR, FIXED, METAL FILM: 5620 ohms ±1%, 1/2W

TABLE II. A101 PART NUMBER	
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10 Volts	261415-904
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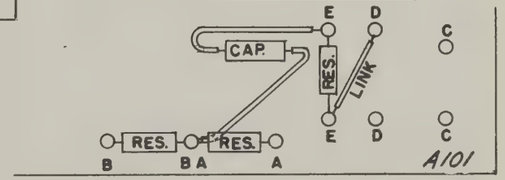
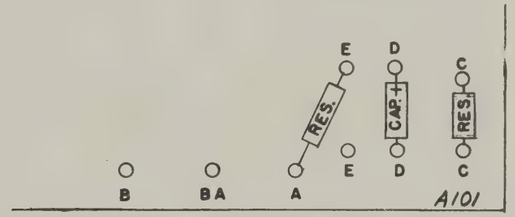
100 Millivolts	261415-902
100 Milliamperes	261415-910
10 Milliamperes	261415-909
1.0 Milliamperes	261415-908
100 Microamperes	261415-907
10 Microamperes	261415-902



View A. Voltage Range Component Connection Method. (See table for part numbers of components required for individual ranges.



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MODEL 1270

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C201, C202	CAPACITOR, ELECTROLYTIC: 20 μf ±20%, 250 WVDC	ND27944-001
C203	CAPACITOR, ELECTROLYTIC: 100 μf -10%+150%, 50 WVDC	264095-001
C204	CAPACITOR, ELECTROLYTIC: 2000 μf -10% +150%, 25 WVDC	264096-001
C301	CAPACITOR, MYLAR FILM: 0.027 μf ±10%, 100 WVDC	264093-001
C302	CAPACITOR, MYLAR FILM: 0.0047 μf ±10%, 100 WVDC	264092-001
C303	CAPACITOR, CERAMIC, DISC: 220 pf ±10%, 1000 WVDC	264091-001
C304	CAPACITOR, CERAMIC, DISC: 100 pf ±10%, 1000 WVDC	264089-001
C305	CAPACITOR, MYLAR FILM: 0.33 μf ±10%, 100 WVDC	264094-001
C306, C307	CAPACITOR: 120 pf ±5%, 500 WVDC	265802-001
C308	CAPACITOR, CERAMIC, DISC: 120 pf ±10%, 1000 WVDC	264090-001
F201	FUSE: 0.25 amp, Type 3AG, 125 volts	264079-001
G301	MICROCIRCUIT: Integrated, medium power, quad 2-input gate	264608-001
G302	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
G401, G405	MICROCIRCUIT: Integrated, medium power, Hex inverter	264612-001
G402	MICROCIRCUIT: Integrated, low power, Triple 3-input gate	264610-001
G403, G404 G406	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
I401	INDICATOR: Out of Range, 125 v	264032-001

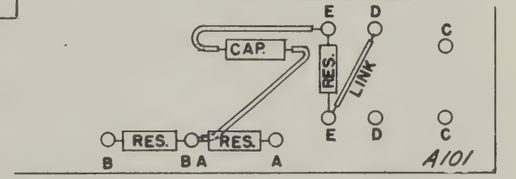
FUNCTION & RANGE	COMPONENTS AND LOCATION BETWEEN TERMINALS (See Views A & B)							
	BA-A	B-B	C-C	D-D	A-E	E-D	BA-E	E-E
1000 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	265803-001
100 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	265804-001
10 Volts	264772-001	264772-001	-	-	-	LINK	264769-001	-
1.0 Volt	264753-001	LINK	-	-	-	-	264752-001	-
100 Millivolts	-	-	264799-001	265800-001	-	-	-	-
100 Milliamps	-	-	264799-001	265800-001	264776-001	-	-	-
10 Milliamps	-	-	264799-001	265800-001	264773-001	-	-	-
1.0 Milliamp	-	-	264799-001	265800-001	264775-001	-	-	-
100 Microamps	-	-	264799-001	265800-001	264771-001	-	-	-
10 Microamps	-	-	264799-001	265800-001	-	-	-	-

Components are supplied properly assembled on Mother Board Assembly. Refer to Table II to determine the part number of the Mother Board Assembly (A101) for the various ranges.

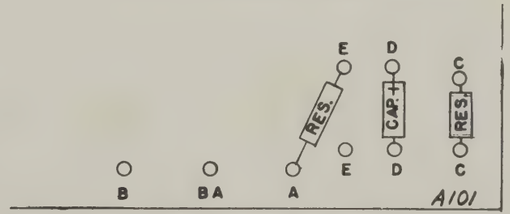
The Link consists of #22 Gage Copper Wire (ND12867-000) cut to required length inside tubing (ND29890-001) also cut to length required.

COMPONENT IDENTIFICATION TABLE	
PART NUMBER	DESCRIPTION
264752-001	CAPACITOR, METALLIZED MYLAR: 1.0 mfd ±20%, 100 WVDC
264753-001	RESISTOR, FIXED, METAL FILM: 49.9K ±1%, 1/2 W
264769-001	CAPACITOR, METALLIZED MYLAR: 0.1 mfd ±20%, 600 WVDC
264771-001	RESISTOR, FIXED, METAL FILM: 1150 ohms ±1%, 1/2W
264772-001	RESISTOR, FIXED, WIRE WOUND: 500K ±1%, 1W
264773-001	RESISTOR, FIXED, WIRE WOUND: 10 ohms ±1%, 2W
264775-001	RESISTOR, FIXED, WIRE WOUND: 100 ohms ±1%, 2W
264776-001	RESISTOR, FIXED, WIRE WOUND: 1.0 ohm ±1%, 2W
264799-001	RESISTOR, FIXED, METAL FILM: 4.99K ±1%, 1/2W
265800-001	CAPACITOR, SOLID TANTALUM, POLARIZER: 10 mfd ±20%, 20 WVDC
265803-001	RESISTOR, FIXED, METAL FILM: 499 ohms ±1%, 1/2W
265804-001	RESISTOR, FIXED, METAL FILM: 5620 ohms ±1%, 1/2W

TABLE II. A101 PART NUMBER	
FUNCTION & RANGE	A101-MOTHER BOARD ASSY PART NUMBER
1000 Volts	261415-906
100 Volts	261415-905
10 Volts	261415-904
1.0 Volts	261415-903
100 Millivolts	261415-902
100 Milliamperes	261415-910
10 Milliamperes	261415-909
1.0 Milliamperes	261415-908
100 Microamperes	261415-907
10 Microamperes	261415-902



View A. Voltage Range Component Connection Method. (See table for part numbers of components required for individual ranges.



View B. Millivolt, Milliamp and Microamp Component Connection Method. (See table for part numbers of components required for individual ranges)

REPLACEMENT PARTS LIST
MODEL 1270

REFERENCE SYMBOL	DESCRIPTION	WESTON PART NO.
	ELECTRICAL COMPONENTS	
A101	CIRCUIT BOARD ASSEMBLY: Mother board	See Table II
A201	CIRCUIT BOARD ASSEMBLY: Power board	261432-901
A301	CIRCUIT BOARD ASSEMBLY: Analog board	261412-901
A401	CIRCUIT BOARD ASSEMBLY: Driver board	261408-901
C201, C202	CAPACITOR, ELECTROLYTIC: 20 μf ±20%, 250 WVDC	ND27944-001
C203	CAPACITOR, ELECTROLYTIC: 100 μf -10% +150%, 50 WVDC	264095-001
C204	CAPACITOR, ELECTROLYTIC: 2000 μf -10% +150%, 25 WVDC	264096-001
C301	CAPACITOR, MYLAR FILM: 0.027 μf ±10%, 100 WVDC	264093-001
C302	CAPACITOR, MYLAR FILM: 0.0047 μf ±10%, 100 WVDC	264092-001
C303	CAPACITOR, CERAMIC, DISC: 220 pf ±10%, 1000 WVDC	264091-001
C304	CAPACITOR, CERAMIC, DISC: 100 pf ±10%, 1000 WVDC	264089-001
C305	CAPACITOR, MYLAR FILM: 0.33 μf ±10%, 100 WVDC	264094-001
C306, C307	CAPACITOR: 120 pf ±5%, 500 WVDC	265802-001
C308	CAPACITOR, CERAMIC, DISC: 120 pf ±10%, 1000 WVDC	264090-001
F201	FUSE: 0.25 amp, Type 3AG, 125 volts	264079-001
G301	MICROCIRCUIT: Integrated, medium power, quad 2-input gate	264608-001
G302	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
G401, G405	MICROCIRCUIT: Integrated, medium power, Hex inverter	264612-001
G402	MICROCIRCUIT: Integrated, low power, Triple 3-input gate	264610-001
G403, G404 G406	MICROCIRCUIT: Integrated, low power, quad 2-input gate	264609-001
I401	INDICATOR: Out of Range, 125 v	264032-001

REFERENCE SYMBOL	DESCRIPTION		WESTON PART NO.
J101	CONNECTOR RECEPTACLE: 20 contacts		264025-001
J102	CONNECTOR RECEPTACLE: 36 contacts		264024-001
J103	CONNECTOR RECEPTACLE: 44 contacts		264023-001
Q201	TRANSISTOR, SILICON POWER: 3 Amps		264607-001
Q202, Q301 Q302, Q305	TRANSISTOR: Type 2N2712		ND39917-001
Q303, Q304 Q306	TRANSISTOR: Type 2N3638		ND61280-001
Q307	TRANSISTOR, SILICON, UNIJUNCTION: 10 Amp peak		264606-001
Q308	TRANSISTOR, SILICON, HIGH VOLTAGE: 200 mw		264605-001
Q309	MICROCIRCUIT, AMPLIFIER: High gain 30,000 ±12 VDC		264611-001
Q401 thru Q430	TRANSISTOR, SILICON, HIGH VOLTAGE: 200 mw		264605-001
R201	RESISTOR, FIXED, COMPOSITION: 470K ±5%, 1/2w		264779-001
R202	RESISTOR, VARIABLE, WIRE WOUND: 500 ohms ±20%, 2w		264097-001
R203	RESISTOR, FIXED, COMPOSITION: 20 ohms ±5%, 1/2w		264081-001
R204	RESISTOR, FIXED, COMPOSITION: 200 ohms ±5%, 1/2w		264778-001
R301	RESISTOR, FIXED, METAL FILM: 49.9k ±1.0%, 1/2w		264753-001
R302	RESISTOR, FIXED, METAL FILM: 4.9k ±1.0%, 1/2w		264799-001
R303	RESISTOR, FIXED, METAL FILM: 10k ±1.0%, 1/2w		265861-001
R304	RESISTOR, FIXED, METAL FILM: 392k ±1.0%, 1/2w		264627-001
	RESISTOR, FIXED, METAL FILM: 499k ±1.0%, 1/2w		264628-001
	RESISTOR, FIXED, METAL FILM: 604 ±1.0%, 1/2w		264629-001
	RESISTOR, FIXED, METAL FILM: 715k ±1.0%, 1/2w	One Selected as req.	264630-001
	RESISTOR, FIXED, METAL FILM: 825k ±1.0%, 1/2w		264631-001
	RESISTOR, FIXED, METAL FILM: 249k ±1.0%, 1/2w		265862-001
	RESISTOR, FIXED, METAL FILM: 1 Meg. ±1.0%, 1/2w		264632-001
	RESISTOR, FIXED, METAL FILM: 1.21 Meg. ±1.0%, 1/2w		264633-001

REFERENCE SYMBOL	DESCRIPTION		WESTON PART NO.
R305	RESISTOR, FIXED, METAL FILM: 825k ±1.0%, 1/2w		264631-001
	RESISTOR, FIXED, METAL FILM: 1 Megohm ±1.0%, 1/2w		264632-001
	RESISTOR, FIXED, METAL FILM: 1.21 Megohm ±1.0%, 1/2w	One Selected as req.	264633-001
	RESISTOR, FIXED, METAL FILM: 1.50 Megohm ±1.0%, 1/2w		264634-001
	RESISTOR, FIXED, METAL FILM: 499k ±1.0%, 1/2w		264628-001
	RESISTOR, FIXED, METAL FILM: 604k ±1.0%, 1/2w		264629-001
R306	RESISTOR, FIXED, COMPOSITION: 1500 ohms ±5%, 1/2w		264083-001
R307	RESISTOR, VARIABLE: 5000 ohms		261428-902
R308	RESISTOR, VARIABLE: 3000 ohms		264098-001
R309	RESISTOR, VARIABLE: 500 ohms		261428-901
R310	RESISTOR, FIXED, METAL FILM: 13.3k ±1.0%, 1/2w		264614-001
	RESISTOR, FIXED, METAL FILM: 16.2k ±1.0%, 1/2w		264615-001
	RESISTOR, FIXED, METAL FILM: 19.1k ±1.0%, 1/2w		264616-001
	RESISTOR, FIXED, METAL FILM: 22.1k ±1.0%, 1/2w	One Selected as req.	264617-001
	RESISTOR, FIXED, METAL FILM: 24.9k ±1.0%, 1/2w		264618-001
	RESISTOR, FIXED, METAL FILM: 28.0k ±1.0%, 1/2w		264619-001
	RESISTOR, FIXED, METAL FILM: 34.8k ±1.0%, 1/2w		265864-001
	RESISTOR, FIXED, METAL FILM: 31.6k ±1.0%, 1/2w		264621-001
R311	RESISTOR, FIXED, COMPOSITION: 12k ±5%, 1/2w		264084-001
R312, R323	RESISTOR, FIXED, COMPOSITION: 2200 ohms ±5%, 1/2w		ND29948-001
R313, R324	RESISTOR, FIXED, COMPOSITION: 680 ohms ±5%, 1/2w		ND29717-001

REFERENCE SYMBOL	DESCRIPTION		WESTON PART NO.
R314	RESISTOR, FIXED, METAL FILM: 69.8k ±1.0%, 1/2w	One Selected as req.	264622-001
	RESISTOR, FIXED, METAL FILM: 73.2k ±1.0%, 1/2w		264623-001
	RESISTOR, FIXED, METAL FILM: 75.0k ±1.0%, 1/2w		264624-001
	RESISTOR, FIXED, METAL FILM: 76.8k ±1.0%, 1/2w		264625-001
	RESISTOR, FIXED, METAL FILM: 78.7k ±1.0%, 1/2w		264626-001
	RESISTOR, FIXED, METAL FILM: 80.6k ±1.0%, 1/2w		265863-001
R315	RESISTOR, VARIABLE: 1000 ohms ±20%		262068-901
R316	RESISTOR, VARIABLE: 4000 ohms ±20%, 2w		ND39918-001
R317, R322	RESISTOR, FIXED, COMPOSITION: 100k ±5%, 1/2w		264086-001
R318, R320, R326	RESISTOR, FIXED, COMPOSITION: 6800 ohms ±5%, 1/2w		ND28680-001
R319, R321	RESISTOR, FIXED, COMPOSITION: 39k ±5%, 1/2w		264085-001
R325	Deleted		-
R327	RESISTOR, FIXED, COMPOSITION: 1.5 Megohms ±5%, 1/2w		265801-001
R328, R332	RESISTOR, FIXED, COMPOSITION: 100 ohms ±5%, 1/2w		264080-001
R329, R330	RESISTOR, FIXED, COMPOSITION: 15k ±5%, 1/2w		ND28905-001
R331	RESISTOR, FIXED, COMPOSITION: 1800 ohms ±5%, 1/2w		ND61010-001
R333	RESISTOR, FIXED, COMPOSITION: 3.3k ±5%, 1/2w	One Selected as req.	ND61011-001
	RESISTOR, FIXED, COMPOSITION: 4.7k ±5%, 1/2w		ND37921-001
	RESISTOR, FIXED, COMPOSITION: 6.8k ±5%, 1/2w		ND28680-001
	RESISTOR, FIXED, COMPOSITION: 10k ±5%, 1/2w		ND29716-001
R401 thru R403	RESISTOR, FIXED, COMPOSITION: 51k ±5%, 1w		ND24024-001
T201	TRANSFORMER: 117v primary to 97v, 28v, 7v Sections		261435-901
V401, V402	TUBE, READOUT		264034-001
V403	TUBE, READOUT: With decimal		264035-001
CR201	BRIDGE, RECTIFIER: Single phase, voltage doubler, 0.5 to 1.0 amp output		264603-001

REFERENCE SYMBOL	DESCRIPTION	WESTON PART NO.
CR202	BRIDGE, RECTIFIER: Full wave, single phase 0.5 to 1.0 amp output	264604-001
CR203	BRIDGE, RECTIFIER: Full wave, single phase 1.5 amp output	264602-001
CR204	DIODE, ZENER: 6.2 volts 1w	264600-001
CR205	DIODE, ZENER: 5.6 volts, 1w	264099-001
CR206	DIODE, ZENER: 12 volts, 1w	264601-001
CR301, CR302 CR305	DIODE, SWITCHING: 100 peak inverse voltage	ND61025-001
CR303	DIODE, ZENER: 6.2 volts, 400 mw	263207-001
CR304	DIODE, ZENER: 6.2 volts, 250 mv, 0.005%/°C	ND60978-001
FF301 thru FF303	MICROCIRCUIT: Integrated, medium power, Flip-Flop	264613-001
FF401 thru FF406	MICROCIRCUIT: Integrated, medium power, Flip-Flop	264613-001

HARDWARE PARTS (See figure 2.)

------	PLATE, PRINTED, Magnetic (Identifies meter function)	261418-902
------	PLATE, PRINTED, Magnetic (Model identification	See Note
------	FRONT ASSEMBLY	261397-901
------	SCREW (Mounting front assembly)	ND30172-024
------	WASHER, LOCK (Mounting front assembly)	ND37005-024
------	WASHER, FLAT (Mounting front assembly)	251072-024
------	STUD (Mounting main assembly to panel)	261426-045
------	WASHER (Mounting main assembly to panel)	137259-024

Note: Order by stating Meter function.

NOTES

NOTES

NOTES

1MEG
1MF
200
1ST
INPUT
+
-
A
B
C
D
E
F

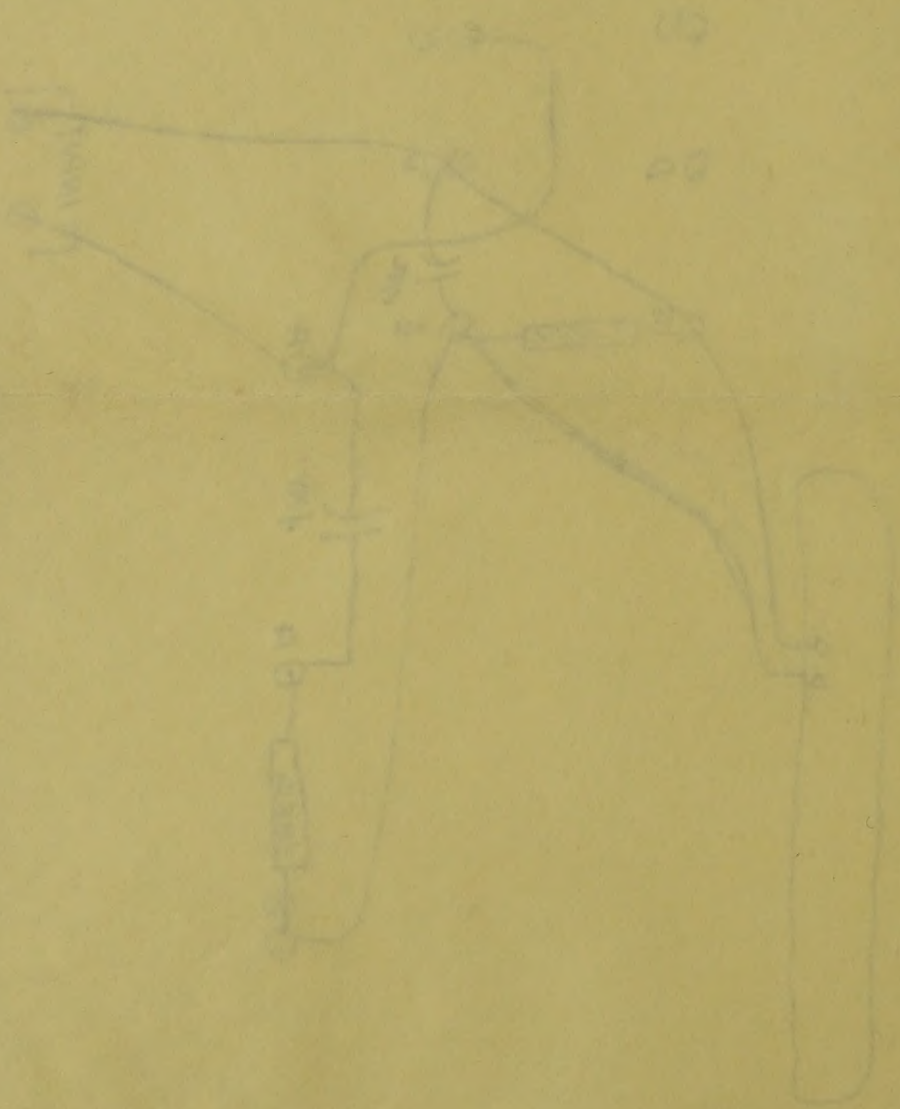
WIMA

1000 WATTS . . . 1150 KILOCYCLES

RADIO

AVOID VERBAL INSTRUCTIONS

To:..... Date.....



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